

American Bridge Trump Policy Brief: Rollback Of Methane Rules

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ROLLBACK OF METHANE RULES

Donald Trump spent the first few months of his presidency gutting Obama-era regulations protecting against the adverse effects of methane pollution, which has 25 times the impact on climate change as carbon dioxide.

In June 2017, the Trump administration announced its intention to delay two of the previous administration's most impactful protections against methane pollution: regulations requiring companies to prevent methane leaks, and limits on methane pollution on public lands. The EPA acknowledged that staying its regulations on methane leaks would disproportionally impact children, but played down the impact as "limited."

Trump also reconsidered rules that would impact a methane-spewing golf course operated by the Trump Organization. Trump Golf Links at Ferry Point was built on a remediated garbage dump that emits toxic methane fumes. In May 2017, the Trump administration announced that it would reconsider methane pollution limits for landfills "at the request of the waste disposal industry."

In fact, most of the Trump administration's actions related to methane have come at the request of industry interests, including oil and gas trade groups. The administration primed its pro-methane push in March 2017 by withdrawing an Obama-era request for information on methane pollution from oil and gas industry owners to "reduce burdens on businesses."

The Trump Administration Gutted Obama-Era Rules Protecting Americans From Methane Pollution

JUNE 2017: THE TRUMP ADMINISTRATION ADMITTED THAT IT PUT INDUSTRY INTERESTS OVER THE HEALTH OF CHILDREN BY SUSPENDING METHANE LEAK STANDARDS

<u>The Trump Administration Proposed A Two-Year Stay On Rules Intended To Prevent</u> <u>Methane Leaks</u>

The Trump Administration Proposed A Two-Year Stay On An Obama-Era Rule Requiring Companies To Detect And Capture Leaking Methane Emissions. According to Reuters, "The move is part of an effort by President Donald Trump, a Republican, to roll back the environmental regulations of former President Barack Obama, a Democrat. The Environmental Protection Agency on Tuesday said it would propose a two-year stay on another Obama methane rule requiring companies to detect and capture leaking emissions." [Reuters, <u>6/14/17]</u>

The Rule Required Oil And Gas Companies To Monitor And Plug Methane Leaks From Well Sites And Compressor Stations. According to The Guardian, "The EPA said it had received petitions from 'interested parties' to reconsider the rule, which is designed to reduce methane, a powerful greenhouse gas, and emissions that can cause smog. Oil and gas companies are required to monitor and plug any leaks from well sites and compressor stations under the regulation." [The Guardian, <u>6/14/17]</u>

<u>The EPA Admitted That The Stay Would Disproportionately Impact The Health Of</u> <u>Children, But Claimed That The Impact Would Be "Limited"</u>

The EPA Acknowledged That Children Would Be Disproportionately Harmed By The Stay. According to The Guardian, "The Environmental Protection Agency has proposed delaying a federal

air pollution rule for two years, despite acknowledging that children will be disproportionately harmed by the decision." [The Guardian, $\frac{6/14/17}{10}$]

• The EPA Noted That The Stay "May Have A Disproportionate Effect On Children." According to a notice published by the Environmental Protection Agency, "The Environmental Protection Agency (EPA) is proposing to stay for two years certain requirements that are contained within the Final Rule titled 'Oil and Natural Gas Sector: Emission Standards for New, Reconstructed, and Modified Sources,' published in the Federal Register on June 3, 2016 (2016 Rule). [...] This action is subject to Executive Order 13045 because it is an economically significant regulatory action as defined by Executive Order 12866, and the EPA believes that the environmental health or safety risk addressed by this action may have a disproportionate effect on children." [Environmental Protection Agency, <u>6/12/17</u>]

The EPA Claimed That The Effect On Children Would Be "Limited" Due To The Length Of The Stay. According to a notice published by the Environmental Protection Agency, "This action is subject to Executive Order 13045 because it is an economically significant regulatory action as defined by Executive Order 12866, and the EPA believes that the environmental health or safety risk addressed by this action may have a disproportionate effect on children. However, because this action merely proposes to delay the 2016 Rule, this action will not change any impacts of the 2016 Rule after the stay. Any impacts on children's health caused by the delay in the rule will be limited, because the length of the proposed stay is limited." [Environmental Protection Agency, <u>6/12/17</u>]

Children Would Be At An Increased Risk Of Cancer Under The Stay

According To Environmental Groups, Children Would Be At A Heightened Risk Of Cancer From Pollutants Like Benzene Under The Stay. According to The Guardian, "The regulator plans to suspend standards aimed at preventing leaks from the oil and gas industry while it reconsiders the rule, which was introduced in June 2016 under Barack Obama's administration. [...] Environmental groups castigated the EPA over the delay, saying children would be at heightened risk from cancer-forming pollutants such as benzene if the rule were lifted." [The Guardian, <u>6/14/17</u>]

The Stay Came In Response To Pressure From Industry Interests

The EPA Had Received Petitions From Industry Interests To Reconsider The Rule. According to The Guardian, "The Environmental Protection Agency has proposed delaying a federal air pollution rule for two years, despite acknowledging that children will be disproportionately harmed by the decision. [...] The EPA said it had received petitions from 'interested parties' to reconsider the rule, which is designed to reduce methane, a powerful greenhouse gas, and emissions that can cause smog." [The Guardian, <u>6/14/17</u>]

The Regulation Covered Approximately 18,000 Oil And Gas Facilities In 22 States. According to The Guardian, "The regulator plans to suspend standards aimed at preventing leaks from the oil and gas industry while it reconsiders the rule, which was introduced in June 2016 under Barack Obama's administration. [...] Environmental groups castigated the EPA over the delay, saying children would be at heightened risk from cancer-forming pollutants such as benzene if the rule were lifted. The regulation applies to about 18,000 oil and gas facilities in 22 states." [The Guardian, <u>6/14/17</u>]

The Oil And Gas Industry Stood To Save \$173 Million Under The Stay

The Oil And Gas Industry Would Save \$173 Million Under The Stay. According to a notice published by the Environmental Protection Agency, "The Environmental Protection Agency (EPA) is proposing to stay for two years certain requirements that are contained within the Final Rule titled 'Oil and Natural Gas Sector:

Emission Standards for New, Reconstructed, and Modified Sources,' published in the Federal Register on June 3, 2016 (2016 Rule). [...] As can be seen in Table 2, the cost savings of this proposal in 2017 and 2018, mainly due to forgone annual operating and maintenance costs, are slightly offset by the higher costs in 2019, due to the larger number of sources that would be incurring capital and annual operating and maintenance costs in that year under this proposal. As can be seen in Table 3, the estimated total present value of cost savings associated with this proposal are \$173 million when using a 3 percent discount rate and \$172 million when using a 7 percent discount rate." [Environmental Protection Agency, <u>6/12/17</u>]

April 2017: The DOJ Halted Litigation Against The Rule Initiated By Oil And Gas Interests During The Obama Administration

The Trump Administration Asked The U.S. Court Of Appeals For The D.C. Circuit To Halt Litigation Related To The Obama Administration's Methane Regulations For New Oil And Gas Operations. According to E&E News, "The Trump administration today asked a federal court to press the pause button on litigation over the Obama administration's methane curbs for new oil and gas operations. The Justice Department filed a motion to place the litigation in abeyance for 30 days while U.S. EPA decides whether to suspend, revise or rescind the rules. Published in June 2016, the Obama administration's Clean Air Act New Source Performance Standards require new and heavily modified oil and gas operations to check for and repair leaks of methane, a greenhouse gas that is more than 25 times as potent as carbon dioxide. More than a dozen states and several oil and gas trade organizations filed lawsuits last summer challenging the standards in the U.S. Court of Appeals for the District of Columbia Circuit." [E&E News, <u>4/7/17</u>]

Sierra Club Chief Climate Counsel Joanne Spalding Called The Stay A "Deliberate Attempt To Benefit The Oil And Gas Industry At The Expense Of Our Public Health"

According To Sierra Club Chief Climate Counsel Joanne Spalding, The Move Was A "Deliberate Attempt To Benefit The Oil And Gas Industry At The Expense Of Our Public Health." According to The Guardian, "The Environmental Protection Agency has proposed delaying a federal air pollution rule for two years, despite acknowledging that children will be disproportionately harmed by the decision. The regulator plans to suspend standards aimed at preventing leaks from the oil and gas industry while it reconsiders the rule, which was introduced in June 2016 under Barack Obama's administration. [...] 'This isn't simply mean-spirited, it's a deliberate attempt to benefit the oil and gas industry at the expense of our public health,' said Joanne Spalding, chief climate counsel at the Sierra Club." [The Guardian, <u>6/14/17</u>]

EPA Administrator Scott Pruitt Sued The Obama Administration Over The Rule

The EPA "Stalled Parts Of A Rule On Methane Emissions From Oil And Gas Development," The Rule That Oklahoma Sued Over While Pruitt Was The Attorney General. According to the Casper Star-Tribune, "The Environmental Protection Agency stalled parts of a rule on methane emissions from oil and gas development Wednesday, the latest move from the new administration as it walks back on Obama-era limits on the industry. Regulations that force companies to capture methane leaks have come under fire since Trump entered the White House and a conservative majority took the House and Senate. [...]A number of states sued the EPA over the rule limiting emissions on new and modified sources when it was first passed in 2016. Among those states was Oklahoma, where now-EPA head Scott Pruitt was attorney general." [Casper Star-Tribune, <u>5/31/17</u>]

Regulatory Reversals At The EPA Under Pruitt Convinced Devon Energy To Cancel Plans To Install A Leak Detection System

Devon Energy In Wyoming "Had Been Preparing To Install A Sophisticated System To Detect And Reduce Leaks Of Dangerous Gases," But After Pruitt Took Over The EPA, Devon "No Longer **Intended To Move Ahead With The [...] Emissions-Control System."** According to the New York Times, "In a gas field here in Wyoming's struggling energy corridor, nearly 2,000 miles from Washington, the Trump administration's regulatory reversal is crowning an early champion. Devon Energy, which runs the windswept site, had been prepared to install a sophisticated system to detect and reduce leaks of dangerous gases. It had also discussed paying a six-figure penalty to settle claims by the Obama administration that it was illegally emitting 80 tons each year of hazardous chemicals, like benzene, a known carcinogen. But something changed in February just five days after Scott Pruitt, the former Oklahoma attorney general with close ties to Devon, was sworn in as the head of the Environmental Protection Agency. Devon, in a letter dated Feb. 22 and obtained by The New York Times, said it was 're-evaluating its settlement posture.' It no longer intended to move ahead with the extensive emissions-control system, second-guessing the E.P.A.'s estimates on the size of the violation, and it was now willing to pay closer to \$25,000 to end the three-year-old federal investigation." [New York Times, <u>5/20/17</u>]

 "In Just The Last Three Months [...] The E.P.A. Postponed A Long Planned Rule Requiring Companies Like Devon To Retrofit Drilling Equipment To Prevent Leaks Of Methane Gas." According to the New York Times, "In just the last three months, with Mr. Pruitt in charge, the E.P.A. postponed a long-planned rule requiring companies like Devon to retrofit drilling equipment to prevent leaks of methane gas — a major contributor to climate change — and to collect more data on how much of the gas is spewing into the air." [New York Times, 5/20/17]

JUNE 2017: THE TRUMP ADMINISTRATION PLANNED TO SUSPEND PROTECTIONS AGAINST METHANE POLLUTION ON PUBLIC LANDS

The Trump Administration Planned To Suspend Compliance Dates For An Obama-Era Rule That Limited Methane Emissions From Oil And Gas Companies On Public Lands. According to Reuters, "The Trump administration will suspend compliance dates on a rule limiting methane emissions from oil and gas companies working on public lands as soon as Thursday, according to an Interior Department document. The move is part of an effort by President Donald Trump, a Republican, to roll back the environmental regulations of former President Barack Obama, a Democrat." [Reuters, <u>6/14/17</u>]

The Rule Would Be Suspended Pending Litigation Initiated By Industry Interests

The Rule Would Be Suspended Until A Federal Court Considered Litigation On The Regulation. According to Reuters, "The Trump administration will suspend compliance dates on a rule limiting methane emissions from oil and gas companies working on public lands as soon as Thursday, according to an Interior Department document. [...] Compliance dates on the rule on methane on public lands, which the Obama administration issued in November 2016, will be suspended until a federal court in Wyoming considers litigation on the regulation, said the document, a copy of which was seen by Reuters. Industry groups and several states with significant amounts of federally-owned land had petitioned the rule, saying it would add additional costs to drilling operations." [Reuters, <u>6/14/17</u>]

Industry Groups Complained That The Rule Would Add Additional Costs To Drilling Operations. According to Reuters, "The Trump administration will suspend compliance dates on a rule limiting methane emissions from oil and gas companies working on public lands as soon as Thursday, according to an Interior Department document. [...] Compliance dates on the rule on methane on public lands, which the Obama administration issued in November 2016, will be suspended until a federal court in Wyoming considers litigation on the regulation, said the document, a copy of which was seen by Reuters. Industry groups and several states with significant amounts of federally-owned land had petitioned the rule, saying it would add additional costs to drilling operations." [Reuters, <u>6/14/17]</u>

MAY 2017: THE EPA ANNOUNCED THAT IT WOULD RECONSIDER METHANE LIMITS FOR LANDFILLS

The EPA Announced That It Would Reconsider Methane Emission Limits From Landfills.

According to Houston Public Media, "The Environmental Protection Agency (EPA) is reconsidering proposed rules on methane emissions from landfills. It's a move that comes at the request of the waste disposal industry. [...] Why oppose these rules? Kerry Kelly with Waste Management, Inc. says it's because as written, they're just not feasible. It's never been our desire to repeal the rules,' she says. 'We want the rules on the books, we want them to work.'" [Houston Public Media, 5/29/17]

• The EPA's Decision To Reconsider Proposed Rules On Methane Emissions From Landfills Came "At The Request Of The Waste Disposal Industry." According to Houston Public Media, "The Environmental Protection Agency (EPA) is reconsidering proposed rules on methane emissions from landfills. It's a move that comes at the request of the waste disposal industry. [...] Why oppose these rules? Kerry Kelly with Waste Management, Inc. says it's because as written, they're just not feasible. 'It's never been our desire to repeal the rules,' she says. 'We want the rules on the books, we want them to work.'" [Houston Public Media, <u>5/29/17</u>]

A Trump Organization Golf Course Was Built On A Remediated Garbage Dump, Which Released Toxic Methane Fumes

The Trump Organization Operates The Trump Golf Links At Ferry Point Rent-Free Under A Special Arrangement With New York City. According to Curbed New York, "In the Bronx, the Trump Organization is raking in millions of dollars from a special rent-free arrangement to operate Trump Ferry Point, a city golf course built on top of a noxious garbage dump. As the current president continues in his quest to weaken environmental regulations, it is unclear what the future will be for these polluted sites, and for the many other brownfields, Superfund sites, and contaminated wastelands in New York City." [Curbed New York, <u>2/9/17</u>]

Trump Golf Links At Ferry Point Is A City-Owned Public Golf Course That Was Built On A Remediated Garbage Dump. According to Curbed New York, "Perhaps the most toxic property in the Trump family's dossier is Trump Golf Links at Ferry Point, a city-owned public golf course that opened in 2015 atop a remediated garbage dump in the Bronx. Described by The New York Times as 'one of the more egregious symbols of class division in a city already so famously replete with them,' the cleanup and construction of the course were financed by taxpayers at a cost of over \$230 million, making this 'one of the most expensive golf courses ever built' and 'the most expensive municipal golf course in the nation.' Yet the Trump Organization currently operates here rent-free (and will continue to do so for two more years), as part of a sweetheart deal negotiated by former billionaire mayor Michael Bloomberg." [Curbed New York, 2/9/17]

Toxic Methane Fumes From Rotting Garbage Emanate From The Dump Underneath The Course. According to Curbed New York, "The golf course has so far brought in millions of dollars in revenue by charging the highest fees of any public course in the city. Situated in a city park but surrounded by iron fences, a screen of trees and numerous 'no trespassing' signs, the notion that this course is 'public' is debatable. What is unquestionable is that the toxic methane fumes from the rotting garbage underneath it are a serious threat to the surrounding community, which includes a number of public housing complexes. But building on a toxic dumping ground didn't come without problems, including contaminated soil; vents to release poisonous methane gas have been constructed throughout the park's property. 'At the spots near the edges of the fill where the migrating methane finds an opening to vent upward, the gas can become concentrated, potentially to levels where it will explode if exposed to a spark,' according to a 2003 report in the NY Times. 'In early 2001, the State Department of Environmental Conservation told the developers to dig a gas-venting trench around the site to prevent this problem.' However, methane releases have continued to be a problem in the area, as the dump continues to rot and settle." [Curbed New York, 2/9/17]

APRIL 2017: THE TRUMP ADMINISTRATION ANNOUNCED THAT IT WOULD RECONSIDER OBAMA-ERA LIMITS ON METHANE POLLUTION

The EPA Announced That It Would Delay And Reconsider A Rule Limiting The Emission Of Methane And Other Pollutants From New Or Revamped Oil And Gas Wells And Systems. According to Reuters, "The U.S. Environmental Protection Agency will reconsider a rule on greenhouse gas emissions from oil and gas operations and delay its compliance date, the agency said on Wednesday in the Trump administration's latest move to reduce regulations. Oil interest groups, including the American Petroleum Institute and the Texas Oil and Gas Association, had petitioned the EPA a year ago to reconsider the rule limiting emissions of methane and other pollutants from new and revamped oil and gas wells and systems. The EPA said in a statement that it would delay the rule's June 3 compliance date by 90 days and take public comments during that period." [Reuters, <u>4/19/17</u>]

The Obama Administration's EPA Calculated That The Emissions Limits Would Lead To \$690 Million In Benefits, Including Lower Medical Bills. According to Reuters, "The U.S. Environmental Protection Agency will reconsider a rule on greenhouse gas emissions from oil and gas operations and delay its compliance date, the agency said on Wednesday in the Trump administration's latest move to reduce regulations. [...] Under Democratic President Barack Obama, the EPA released the first methane limits on the facilities in May 2016, saying it would cost energy companies \$530 million, but would lead to \$690 million in benefits, including lowering medical bills." [Reuters, <u>4/19/17</u>]

MARCH 2017: TRUMP SIGNED AN EXECUTIVE ORDER REVERSING RESTRICTIONS ON METHANE EMISSIONS AS PART OF ROLLBACKS TO THE CLIMATE ACTION PLAN

President Trump Signed An Executive Order Rescinding The Climate Action Plan Strategy To Reduce Methane Emissions. According to an executive order titled Promoting Energy Independence and Economic Growth signed by President Donald Trump, "The following reports shall be rescinded: [...] The Report of the Executive Office of the President of March 2014 (Climate Action Plan Strategy to Reduce Methane Emissions)." [White House Office of the Press Secretary, "Presidential Executive Order on Promoting Energy Independence and Economic Growth," <u>3/28/17</u>]

• The Order Repealed Rules Intended To Curb Methane Emissions From Oil And Gas Production. According to Reuters, "President Donald Trump on Tuesday signed an order to undo Obama-era regulations to curb climate change, keeping a campaign promise to support the coal industry while calling into question U.S. support for an international deal to fight global warming. [...] Trump's decree also reverses a ban on coal leasing on federal lands, undoes rules to curb methane emissions from oil and gas production and reduces the weight of climate change and carbon emissions in policy and infrastructure permitting decisions." [Reuters, <u>3/28/17</u>]

MARCH 2017: THE EPA WITHDREW A REQUEST FOR INFORMATION ON METHANE POLLUTION SOURCES IN ORDER TO "REDUCE BURDENS ON BUSINESSES"

The EPA Withdrew A 2016 Request Of More Than 15,000 Oil And Gas Industry Owners And Operators For Information On Sources Of Methane Emissions. According a notice published by the Environmental Protection Agency in the Federal Register, "In 2016, EPA sent letters to more than 15,000 owners and operators in the oil and gas industry, requiring them to provide information. The information request comprised two parts: An 'operator survey' that asked for basic information on the numbers and types of equipment at onshore oil and gas production facilities in the United States, and a 'facility survey' asking for more detailed information on sources of methane emissions and emissions control devices or practices in use by a representative sampling of facilities in several segments of the oil and gas industry. EPA is withdrawing both parts of the information request." [Office of the Federal Register, <u>3/7/17</u>]

- The EPA Claimed that The Withdrawal Was Intended To "Reduce Burdens On Businesses" While The Agency Determined Whether It Still Needed The Regulation. According a notice published by the Environmental Protection Agency in the Federal Register, "The withdrawal is occurring because EPA would like to assess the need for the information that the agency was collecting through these requests, and reduce burdens on businesses while the Agency assesses such need." [Office of the Federal Register, <u>3/7/17</u>]
- The Withdrawal Came At The Request Of The Governors Of Mississippi And Kentucky, As Well As Nine State Attorneys General. According a notice published by the Environmental Protection Agency in the Federal Register, "The withdrawal is occurring because EPA would like to assess the need for the information that the agency was collecting through these requests, and reduce burdens on businesses while the Agency assesses such need. This also comes after the Agency received a letter on March 1, 2017 from nine state Attorneys General and the Governors of Mississippi and Kentucky, expressing concern with the burdens on businesses imposed by the pending requests." [Office of the Federal Register, <u>3/7/17</u>]

Methane Is A Particularly Harmful Pollutant, With A 25x Greater Impact On Climate Change Than Carbon Dioxide

POUND FOR POUND, METHANE HAS 25X THE IMPACT ON CLIMATE CHANGE AS CARBON DIOXIDE

According To The EPA, The Impact Of Methane On Climate Change Is 25 Times Greater Than CO2 "Pound For Pound." According to the U.S. Environmental Protection Agency, "Methane's lifetime in the atmosphere is much shorter than carbon dioxide (CO2), but CH4 is more efficient at trapping radiation than CO2. Pound for pound, the comparative impact of CH4 on climate change is more than 25 times greater than CO2 over a 100-year period." [U.S. Environmental Protection Agency, accessed <u>3/28/17</u>]

• Methane Is More Efficient At Trapping Radiation Than Carbon Dioxide. According to the U.S. Environmental Protection Agency, "Methane's lifetime in the atmosphere is much shorter than carbon dioxide (CO2), but CH4 is more efficient at trapping radiation than CO2." [U.S. Environmental Protection Agency, accessed <u>3/28/17</u>]

2014: Methane Accounted For Approximately 11 Percent Of All U.S. Human-Based Greenhouse Gas Emissions. According to the U.S. Environmental Protection Agency, "Methane (CH4) is the second most prevalent greenhouse gas emitted in the United States from human activities. In 2014, CH4 accounted for about 11 percent of all U.S. greenhouse gas emissions from human activities." [U.S. Environmental Protection Agency, accessed <u>3/28/17</u>]

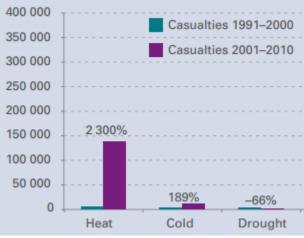
Natural Gas And Petroleum Systems Are The Largest Source Of Industry-Related Methane Emissions In The U.S. According to the U.S. Environmental Protection Agency, "Natural gas and petroleum systems are the largest source of CH4 emissions from industry in the United States. Methane is the primary component of natural gas." [U.S. Environmental Protection Agency, accessed <u>3/28/17</u>]

CLIMATE CHANGE HAS ALREADY LEAD TO A SPIKE IN HEAT-RELATED DEATHS, AND COULD COMPLETELY SUBMERGE 36 U.S. CITIES BY 2100

Zillow Reported That Rising Sea Levels Could Completely Submerge 36 U.S. Cities By 2100, And Almost 300 U.S. Cities Could Lose More Than Half Of Their Homes. According to Zillow, "If sea levels rise as much as climate scientists predict by the year 2100, almost 300 U.S. cities would lose at least half their homes, and 36 U.S. cities would be completely lost." [Zillow, 8/2/16]

- By 2100, Over 12 Percent Of Homes In Florida Could Be Underwater. According to Zillow, "If sea levels rise as much as climate scientists predict by the year 2100, almost 300 U.S. cities would lose at least half their homes, and 36 U.S. cities would be completely lost. One in eight Florida homes would be underwater, accounting for nearly half of the lost housing value nationwide." According to a Zillow chart using data from the National Oceanic and Atmospheric Administration, 12.56% would be underwater if sea levels rise by six feet. [Zillow, 8/2/16]
- By 2100, Almost 1.9 Million Homes Could Be Underwater, Worth A Combined \$882 Billion. According to Zillow, "Nationwide, almost 1.9 million homes (or roughly 2 percent of all U.S. homes) – worth a combined \$882 billion – are at risk of being underwater by 2100." [Zillow, 8/2/16]
- By 2100, More Than 1 In 6 Homes In Boston Could Be Submerged, Along With Almost 3 Percent Of Homes In New York City. According to Zillow, "More than 1 in 6 Boston homes are at risk, and New Yorkers may find almost 3 percent of homes in the city underwater if sea levels rise in line with climatologists' predictions." [Zillow, 8/2/16]

Between The 1990s And The 2000s, There Was A 2,300 Percent Increase In Deaths Related To Heat Worldwide. According to a World Meteorological Organization chart, casualties related to heat increased by 2,300% between 1991-2000 and 2001-2010. This information is further detailed in the following chart:



[World Meteorological Organization, 2013]

CLIMATE CHANGE HAS BEEN LINKED TO GASTROINESTINAL, NERVOUS SYSTEM, RESPIRATORY, AND OTHER ILLNESSES

Climate Change Increases The Risk Of Gastrointestinal Illness As Well As Nervous And Respiratory Illness. According to the EPA, "People can become ill if exposed to contaminated drinking or recreational water. Climate change increases the risk of illness through increasing temperature, more frequent heavy rains and runoff, and the effects of storms. Health impacts may include gastrointestinal illness like diarrhea, effects on the body's nervous and respiratory systems, or liver and kidney damage." [EPA, accessed <u>2/21/17</u>]

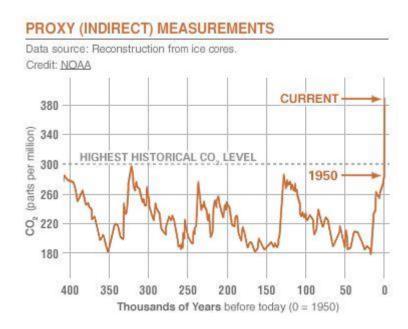
Think Progress: "Research Has Repeatedly Shown That Improved Air Quality Is Associated With Health Benefits Such As Fewer Premature Deaths, Heart Attacks, And Hospitalizations From Respiratory And Cardiovascular Illnesses." According to Think Progress, "Fossil fuel-fired power plants make up about 31 percent of U.S. greenhouse gas emissions—largely carbon dioxide emissions. [...] Research has repeatedly shown that improved air quality is associated with health benefits such as fewer premature deaths, heart attacks, and hospitalizations from respiratory and cardiovascular illnesses." [Think Progress, <u>6/9/16</u>]

Boston Resident Chiamaka Obiolo Testified To The Effect Of Climate Change And Pollution On Minority Neighborhoods As Half Of Her Classmates In Elementary School Had Asthma. According to the Boston Globe, "[Chiamaka] Obiolo said the threat against science is a social justice issue. She said half of her classmates in elementary school had asthma, and she sees how pollution and climate change have affected minority neighborhoods in Boston." [Boston Globe, 2/19/17]

University Of Michigan Professor Of Pediatrics And Director Of The Cystic Fibrosis Center Dr. Samya Nasr: Climate Change Has Had A Direct Impact On Child Health, Exacerbating Child Lung Disease. According to an opinion by University of Michigan Professor of Pediatrics and Director of the Cystic Fibrosis Center Dr. Samya Nasr in the Detroit Free Press, "Despite what the court and governor might think, the climate will keep changing and those changes will have direct impact on human health. As a physician who treats children with lung diseases, I already see the impact of global climate change on my patients." [Dr. Samya Nasr - Detroit Free Press, <u>2/26/16</u>]

CO2 LEVELS HAVE NEVER BEEN HIGHER THAN THEY ARE TODAY

Carbon Dioxide Content Is The Highest It's Ever Been. The following chart from NASA shows the carbon dioxide levels in the atmosphere from over 400,000 years ago to the present day:



[Climate.NASA.gov, accessed 2/21/17]

Carbon Dioxide Emissions Jumped By The Largest Amount On Record In 2010. According to the New York Times: "Global emissions of carbon dioxide from fossil-fuel burning jumped by the largest amount on record last year, upending the notion that the brief decline during the recession might persist through the recovery. Emissions rose 5.9 percent in 2010, according to an analysis released Sunday by the Global Carbon Project, an international collaboration of scientists tracking the numbers. Scientists with the group said the increase, a half-billion extra tons of carbon pumped into the air, was almost certainly the largest absolute jump in any year since the Industrial Revolution, and the largest percentage increase since 2003." [New York Times, 12/4/11]

UNCHECKED CLIMATE CHANGE COULD LEAD TO NATURAL DISASTERS AND MORE EXTREME WEATHER

At Least 14 Extreme Weather Events In 2014, Ranging From Droughts In Syria And East Africa To An Extremely Active Hawaiian Hurricane Season, Were Linked To Climate Change. According to National Geographic, "From a deadly snowstorm in Nepal to a heat wave in Argentina that crashed power supplies, at least 14 extreme weather events last year bore the fingerprints of human-induced climate change, an international team of scientists reported Thursday. Researchers examined 28 weather extremes on all seven continents to see if they were influenced by climate change or were just normal weather. Their conclusion: Half of them showed some role of climate change. [...] Droughts in Syria and East Africa, record rains in New Zealand and France, Nepal's extreme Himalayan snowstorm, flooding in southeastern Canada, and an extremely active Hawaiian hurricane season also had direct or indirect climate links, the report finds. So did increased Antarctic sea ice and hotter Pacific and Atlantic sea-surface temperatures." [National Geographic, 11/2/15]

Climate Change Models Have Predicted That An Increase In Global Temperatures Will Lead To A Higher Risk Of Drought, High Intensity Storms Including Cyclones, Wetter Monsoons, And More Mid-Latitude Storms. According to NASA, "Climate change may not be responsible for the recent skyrocketing cost of natural disasters, but it is very likely that it will impact future catastrophes. Climate models provide a glimpse of the future, and while they do not agree on all of the details, most models predict a few general trends. First, according to the Intergovernmental Panel on Climate Change, an increase of greenhouse gases in the atmosphere will probably boost temperatures over most land surfaces, though the exact change will vary regionally. More uncertain—but possible—outcomes of an increase in global temperatures include increased risk of drought and increased intensity of storms, including tropical cyclones with higher wind speeds, a wetter Asian monsoon, and, possibly, more intense mid-latitude storms." [NASA, accessed 2/22/17]

• Researchers Have Found That Climate Change Will Make Hurricanes More Intense. According to the Washington Post, "Researchers now think that a warming climate, by heating the oceans, will indeed make hurricanes more intense (on average), even though it may not increase their overall numbers (in fact, those may decrease). These storms will also dump more damaging rain in the future, as the atmosphere holds more water vapor on a warming planet." [Washington Post, <u>10/6/16]</u>

Without Cuts In Greenhouse Emissions, The U.S. Could See A 50 Percent Increase In Lightning Strikes By 2100. According to Live Science, "A 50 percent increase in the number of lightning strikes within the United States can be expected by 2100 if temperatures continue to rise due to greenhouse gas emissions, a new study claims. Researchers found a 12 percent increase in lightning activity for every 1.8 degrees Fahrenheit (1 degree Celsius) of warming in the atmosphere, according to the study, published today (Nov. 13) in the journal Science. Without emissions cuts, scientists expect this century to end with global temperatures that are about 7 F (4 C) higher than current global temps." [Live Science, <u>11/13/14</u>]

• According To UC Berkeley Professor David Romps, An Increase In Lightning Strikes Could Lead To An Increase In Wildfires. According to Live Science, "This is yet another noticeable change to climate and weather in the U.S. if we stay on our current [emissions] (*brackets in original*) trajectory,' said lead study author David Romps, an atmospheric scientist at the University of California, Berkeley. 'It's certainly reasonable that a 50 percent increase will lead to an increase in wildfires." [Live Science, <u>11/13/14</u>]

CLIMATE CHANGE HAS ALREADY DEVESTATED INDIGENOUS COMMUNITIES ACROSS THE COUNTRY

Climate Change Has Left 31 Alaskan Villages At "Imminent Risk Of Destruction"

Due To Its Proximity To The Arctic, Alaska Has Warmed Twice As Fast As The Rest Of The U.S., Leaving At Least 31 Alaskan Towns And Cities At "Imminent Risk Of Destruction." According to the New York Times, "With its proximity to the Arctic, Alaska is warming about twice as fast as the rest of the United States and the state is heading for the warmest year on record. The government has identified at least 31 Alaskan towns and cities at imminent risk of destruction, with Shaktoolik ranking among the top four. Some villages, climate change experts predict, will be uninhabitable by 2050, their residents joining a flow of climate refugees around the globe, in Bolivia, China, Niger and other countries." [New York Times, 11/29/16]

• The Alaskan Villages Shishmaref And Kivalina Have Voted To Relocate Due To Climate Change And A Third, Newtok, Has Taken The First Steps Toward A Move. According to the New York Times, "These endangered Alaskan communities face a choice. They could move to higher ground, a wrenching prospect that for a small village could cost as much as \$200 million. Or they could stand their ground and hope to find money to fortify their buildings and shore up their coastline. At least two villages farther up the western coast, Shishmaref and Kivalina, have voted to relocate when and if they can find a suitable site and the money to do so. A third, Newtok, in the soggy Yukon-Kuskokwim Delta farther south, has taken the first steps toward a move." [New York Times, <u>11/29/16</u>]

Kivalina, Alaska

The Threat Of Climate Change Has Cut Off Investment In The Town, Leaving 80 Percent Of Homes Without Toilets

Since Climate Change Has Threatened Kivalina's Long-Term Future, No Money Has Been Invested To Improve Residents' Lives; Eighty Percent Of The Homes Do Not Even Have Toilets. According to the Los Angeles Times, "Because the [Kivalina's] days on the edge of the Chukchi Sea are numbered, no money has been invested to improve residents' lives. Eighty percent of the homes do not have toilets. Most rely on homemade honey buckets — a receptacle lined with a garbage bag topped by a toilet seat." [Los Angeles Times, <u>8/30/15</u>]

Climate Change Has Threatened Kivalina Food Staples And Thus The Inupiat Culture

Kivalina Tribal President Millie Hawley: The Increasingly Warm Weather Has Threatened Many Of The Food Staples On Which Alaska Natives Here Depend. According to the Los Angeles Times, "The Inupiat who live in Kivalina get most of their food from the land and sea around them. The increasingly warm weather means an abundance of cloudberries and low-bush blackberries, said Millie Hawley, Kivalina tribal president, but it also threatens many of the food staples on which Alaska natives here depend." [Los Angeles Times, <u>8/30/15</u>]

- Thinner Ice Has Made It More Difficult And Dangerous For The Alaskan Inupiat Of Kivalina To Go Whaling. According to the Los Angeles Times, "Thinner ice also makes it harder for the Inupiat to go whaling. Normally, crews will build camps at the edge of the so-called shore-fast ice and hunt bowhead and beluga whales as they swim north in spring. 'If the shore-fast ice is thin and weak, it's not safe to make a camp,' said Timothy Schuerch, president of the Maniilaq Assn., a tribally operated health services organization with clinics in Kivalina and the other borough villages. 'Whaling crews have drifted out to sea.'" [Los Angeles Times, 8/30/15]
- Kivalina Tribal President Millie Hawley: The Inupiat Residents Of Kivalina Has Had To Go Without Their Staples Of Dried Meat And Oil After The Weather Has Caused Sharp Reductions In Caribou And Seal Catches. According to the Los Angeles Times, "With the caribou, usually it's like clockwork,' Hawley said. 'Every June, we'd hunt. We haven't done that in years. It's unpredictable. We don't know when we'll see them.' Kivalina residents hang the caribou's hindquarters outside of their homes to age. The frozen meat is eaten raw, dipped in seal oil, which is also harvested in June. Trout is eaten the same way. The Inupiat also depend on seal for meat. 'Usually we get 80 to 100 seals for the whole community,' Hawley said. 'This year, we were looking to get eight. The community now has to go without dried meat and oil.'" [Los Angeles Times, <u>8/30/15</u>]

Storms Forced The Relocation Of 13 Year Old Shelby

As Warming Temperatures Have Stripped Kivalina Of Its Crucial Ice Protection, 13 Year Old Shelby Had To Relocate In 2011 Due To A Storm That Flooded The Island. According to the Los Angeles Times, "Shelby, who just turned 13, has lived in Kivalina her entire life, and she loves her island home dearly. 'It's where I grew up, where everybody I know is,' she said five days before Obama was scheduled to land in Kotzebue. 'We need to relocate because the ocean is slowly eating away our island.' Shelby was in fourth grade when much of Kivalina was forced to evacuate during a fierce storm in 2011. She and her family were on one of the few planes that made it to the mainland before flying conditions became too dangerous. Everyone else sheltered in the school, the highest point on the nearly flat island. 'We had people sleeping in all the classrooms and the gym,' said Emma Knowles, who was Shelby's teacher at McQueen School that

year. 'Someone had gotten a caribou the day before, so we made a huge pot of caribou stew.... The school didn't even budge. As dilapidated as it looks, it survived.' Kivalina is no stranger to harsh weather, and erosion worries have dogged the 27-acre town almost since its inception in 1905. In the 21st century, however, warming temperatures and the perilous changes that cascade from them have stripped the island of its major source of protection: ice." [Los Angeles Times, <u>8/30/15</u>]

Shaktoolik, Alaska

Shaktoolik Has Experienced Severe Flooding, Erosion, And Storms Related To Climate Change

Shaktoolik Has Faced An Imminent Threat From The Increased Flooding And Erosion That Have Come With A Changing Climate. According to the New York Times, "But here in Shaktoolik, one need not be a prophet to predict flooding, especially during the fall storms. Laid out on a narrow spit of sand between the Tagoomenik River and the Bering Sea, the village of 250 or so people is facing an imminent threat from increased flooding and erosion, signs of a changing climate." [New York Times, <u>11/29/16</u>]

- Shaktoolik Residents Have Testified To More Frequent And Intense Storms. According to the New York Times, "Some residents here say that the storms are becoming more frequent and more intense, although scientists do not have data to confirm this. But there is no question that higher ocean temperatures have resulted in less offshore ice, allowing storm surges and waves to hit with greater force and bringing more flooding and erosion. The loss of sea ice, said David Atkinson, a climate scientist at the University of Victoria in British Columbia, is 'undeniably linked' to a warming climate, as is the rising level of the sea as a result of melting glaciers, the increased volume of water lending even more strength to the ocean's assault. Fifty years ago, when the beach was a quarter of a mile away, the increasing violence of the ocean might not have bothered Shaktoolik's residents. But now the sea is almost at their doorsteps." [New York Times, <u>11/29/16</u>]
- Erosion Has Threatened Shaktoolik's Fuel Tanks, Airport, And Drinking Water Supply. According to the New York Times, "Erosion is threatening the village's fuel tanks, its airport and its drinking water supply, which is pumped from the Tagoomenik River. The boundary between river and sea has been so thinned by erosion in some spots that salt water from the ocean, normally a benign source of sustenance, briefly overtopped the bank and poured into the river during a recent storm." [New York Times, <u>11/29/16</u>]

Shaktoolik Has Been Periled By How To Best Preserve Their Community And Culture

Shaktoolik Residents Have Been Faced With The Need To Relocate, Which Can Take Many Years, And Staying, Which Requires Stable Schools, Doctors, And Shelter. According to the New York Times, "As Shaktoolik and other threatened villages have discovered, both staying and moving have their perils. The process of relocation can take years or even decades. In the meantime, residents still need to send their children to school, go to the doctor when they are sick, have functioning water lines and fuel tanks and a safe place to go when a severe storm comes." [New York Times, <u>11/29/16</u>]

- Just Announcing Its Intention To Move, Shaktoolik Lost Funds For Its Clinic. According to the New York Times, "Even announcing the intention to relocate can scuttle a community's request for financing. Some years ago, when Shaktoolik indicated on a grant proposal that it was hoping to move, it lost funds for its clinic, said Isabel Jackson, the city clerk." [New York Times, <u>11/29/16</u>]
- Shaktoolik Residents Fear Relocating Will Harm Their Culture. According to the New York Times, "Shaktoolik's leaders have identified a potential relocation site 11 miles southeast, near the

foothills. But some residents say they fear that their culture, dependent on fishing and hunting, will suffer if they move." [New York Times, $\frac{11/29/16}{10}$]

Barrow, Alaska

Climate Change Is Projected To Destroy Barrow And Its Eight Surrounding Villages, Forcing A 250-Mile Relocation

Washington Post: "Warming Air, Melting Permafrost And Rising Sea Levels" Have Threatened Barrow And Its Eight Surrounding Villages And "Researchers Predict That By Midcentury, The Homes, Schools And Land" Will Be Underwater. According to the Washington Post, "Here in the northernmost municipality of the United States, 320 miles above the Arctic Circle, people are facing the idea that they may soon be among the world's first climate-change refugees. Warming air, melting permafrost and rising sea levels are threatening their coastline, and researchers predict that by midcentury, the homes, schools and land around Barrow and its eight surrounding villages will be underwater. This despite decades of erecting barriers, dredging soil and building berms to hold back the water." [Washington Post, 9/12/16]

• The Only Way To Protect Barrow And Its Surrounding Villages Of The North Slope Borough From Rising Seas Would Be To Move The Town 250 Miles South. According to the Washington Post, "The only thing we can do, as far as I'm concerned, is move our towns inland," says Mike Aamodt, the former acting mayor of Barrow and its surrounding villages of the North Slope Borough, which stretches over 89,000 square miles, an area larger than Utah. Pointing out a window in his second-floor office, Aamodt isn't joking when he declares that the sole refuge from erosion and rising seas is the Brooks mountain range — more than 250 miles south." [Washington Post, <u>9/12/16</u>]

Climate Change Has Led To Frequent States Of Emergency In Barrow And The Constant Threat Of Total Destruction

Washington Post: States Of Emergency Have Been Common In Barrow And "Given The Rising Seas And Coastal Erosion, Every Year Brings The Threat Of A Storm That Could Wipe The Town Off The Map." According to the Washington Post, "When cyclones came through in 2000 and 2004, knocking out Barrow's power supply, the result was flooded and contaminated drinking water. States of emergency are common occurrences here, and given the rising seas and coastal erosion, every year brings the threat of a storm that could wipe the town off the map, Aamodt says." [Washington Post, 9/12/16]

Storms In Barrow Frequently Penetrate Sea Walls, Sometimes Sending Houses Floating Inland For Miles. According to the Washington Post, "A stroll along one of Barrow's handful of roads shows just how tenuous civilization's perch is. Bulldozed mounds of sand and soil more than 20 feet high are all around town. But these sea walls are frequently penetrated as swells and storms overtop the walls, sometimes sending houses, built on stilts because of the impenetrability of permafrost, floating inland for miles." [Washington Post, 9/12/16]

Climate Change Has Had A Devastating Impact On Barrow's Cultural And Historical Preservation

Barrow's Climate Change Problem Has Destroyed Remains Of Early Human Settlements, Creating A Knowledge Gap In Indigenous History. According to the Washington Post, "Barrow's climate-change problem has been years in the making, says Anne Jensen, an ethnographic archaeologist who arrived in Barrow in 1983 and has been excavating some of the earliest human settlements found in this frigid area. The increasing floods and erosion have made her job a scramble against nature. By the time she secures funding and gets ready to enlarge a dig, a site that is often now at water's edge, surging oceans washes everything

away. It's a frustrating way to make a living, she says. 'The entire north coast of the North Slope — most of the sites are already gone. We have a big knowledge gap up there.''' [Washington Post, $\frac{9/12/16}{10}$]

Isle De Jean Charles, Louisiana

Louisiana Has Lost An Area The Size Of Delaware Since The 1930s

Louisiana Has Coped With Some Of The Fastest Rates Of Land Loss In The World, Losing An Area The Size Of Delaware Since The 1930s. According to the New York Times, "Louisiana officials have been coping with some of the fastest rates of land loss in the world — an area the size of Delaware has disappeared from south Louisiana since the 1930s." [New York Times, <u>5/3/16</u>]

Climate Change Has Forced Isle De Jean Charles Tribes To Relocate, Giving Rise To Logistical And Moral Problems In The Process

Two Tribes Living On Isle De Jean Charles Have Been Forced Off Their Land From Climate

Change. According to BuzzFeed, "Last year, two tribes living on Isle de Jean Charles, off the Louisiana coast, made the news as 'climate refugees.' The Isle de Jean Charles Band of Biloxi Chitimacha Choctaw were named awardees of a Department of Housing and Urban Development grant to cities and states facing effects of changing climate. The money funds an effort to relocate the entire community to yet-to-be-chosen site on shore.." [BuzzFeed, <u>2/17/17</u>]

• New York Times: "Since 1955, More Than 90 Percent Of The Island's Original Land Mass Has Washed Away" And What Little Remains "Will Eventually Be Inundated As Burning Fossil Fuels Melt Polar Ice Sheets And Drive Up Sea Levels." According to the New York Times, "For over a century, the American Indians on the island fished, hunted, trapped and farmed among the lush banana and pecan trees that once spread out for acres. But since 1955, more than 90 percent of the island's original land mass has washed away. Channels cut by loggers and oil companies eroded much of the island, and decades of flood control efforts have kept once freeflowing rivers from replenishing the wetlands' sediments. Some of the island was swept away by hurricanes. What little remains will eventually be inundated as burning fossil fuels melt polar ice sheets and drive up sea levels, projected the National Climate Assessment, a report of 13 federal agencies that highlighted the Isle de Jean Charles and its tribal residents as among the nation's most vulnerable." [New York Times, 5/3/16]

NYT: The Department Of Housing And Urban Development Gave Isle De Jean Charles "The First Allocation Of Federal Tax Dollars To Move An Entire Community Struggling With The Impacts Of Climate Change," Which "Exposed Logistical And Moral Dilemmas" In The Process. According to the New York Times, "In January, the Department of Housing and Urban Development announced grants totaling \$1 billion in 13 states to help communities adapt to climate change, by building stronger levees, dams and drainage systems. One of those grants, \$48 million for Isle de Jean Charles, is something new: the first allocation of federal tax dollars to move an entire community struggling with the impacts of climate change. The divisions the effort has exposed and the logistical and moral dilemmas it has presented point up in microcosm the massive problems the world could face in the coming decades as it confronts a new category of displaced people who have become known as climate refugees." [New York Times, 5/3/16]

• The HUD Grant Won't Cover The Entire Cost Of Relocation, But Secretary For The Isle De Jean Charles Band Of Biloxi Chitimacha Choctaw Chantel Comardelle Feels The Plan Is The Tribe's Last Shot At Preserving History. According to BuzzFeed, "But the HUD grant won't cover the whole cost of relocation, and there is some concern that the new administration may not make future grants available. [...] The relocation plan is the tribe's last shot at preserving history,

[Chantel Comardelle, secretary for the Isle de Jean Charles Band of Biloxi Chitimacha Choctaw] said. 'If we lose that one central space and everybody continues to spread out, we'll lose our culture completely. This is our tribe's only hope for future survival.'" [BuzzFeed, 2/17/17]

Climate Change Has Had A Devastating Impact On The Lives Of Isle De Jean Charles Residents

Buzzfeed: Secretary For The Isle De Jean Charles Band Of Biloxi Chitimacha Choctaw Chantel Comardelle "Was Four When A Hurricane Flooded The Trailer Her Family Lived In, And Moved Off The Island When The Mold Started Making Her Ill." According to BuzzFeed, "We're just trying to stay hopeful," Chantel Comardelle, secretary for the Isle de Jean Charles Band of Biloxi Chitimacha Choctaw. Comardelle was four when a hurricane flooded the trailer her family lived in, and moved off the island when the mold started making her ill. As successive storms sank gardens and drowned backyards, others followed; the island population has shrunk to about two dozen families, including Comardelle's aunt and grandparents." [BuzzFeed, 2/17/17]

Joann Bourg Lives In A Mildewed And Rusted House On The Isle De Jean Charles And Frequently Is Kept From Work When The Bridge From The Island Floods. According to the New York Times, "Each morning at 3:30, when Joann Bourg leaves the mildewed and rusted house that her parents built on her grandfather's property, she worries that the bridge connecting this spit of waterlogged land to Louisiana's terra firma will again be flooded and she will miss another day's work. Ms. Bourg, a custodian at a sporting goods store on the mainland, lives with her two sisters, 82-year-old mother, son and niece on land where her ancestors, members of the Native American tribes of southeastern Louisiana, have lived for generations. That earth is now dying, drowning in salt and sinking into the sea, and she is ready to leave." [New York Times, 5/3/16]

Violet Handon Parfait Saw Her House Destroyed By Hurricane Gustav In 2008 And Show Now Lives In Fear That Weather May Prevent Her From Reaching A Doctor To Treat Her Lupus And Her Children From Going To School And Achieving Her Dream Of College For Them. According to the New York Times, "Violet Handon Parfait sees nothing but a bleak future in the rising waters. She lives with her husband and two children in a small trailer behind the wreckage of their house, which Hurricane Gustav destroyed in 2008. The floods ruined the trailer's oven, so the family cooks on a hot plate. Water destroyed the family computer, too. Ms. Parfait, who has lupus, is afraid of what will happen if she is sick and cannot reach a doctor over the flooded bridge. Ms. Parfait, who dropped out of high school, hopes for a brighter future, including college, for her children, Heather, 15, and Reggie, 13. But the children often miss school when flooding blocks their school bus. 'I just want to get out of here,' she said.'' [New York Times, 5/3/16]